

Manufacture and Uses (Sulfur)

Mark Scheme

Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	Sulfur
Sub-Topic	Manufacture and uses (Includes Sulfur dioxide questions)
Paper Type	Alternative to Practical
Booklet	Mark Scheme

Time Allowed: 36 minutes

Score: /30

Percentage: /100

- 1 (a) tripod (1) **accept:** stand spatula (1) not: spoon [2]
- (b) fizz/bubbles/effervescence stops (1)
solid/iron/powder visible / no more iron dissolves/reacts (1) [2]
- (c) evaporation of water/steam (1) solid/residue/crystals formed (1)
colour change turns brown/darker green (1)
effect of heat on solid solid breaks down (1) max 3 [3]

[Total: 7]

- 2 (a) any two variables max 2
- volume
 - concentration of acid **allow** amount
 - volume of sodium thiosulfate/total volume of solution
 - temperature
 - printed sheet
 - same size flask
- ignore** reference to pressure/catalyst/surface area/light max [2]
- (b) straight line drawn with a ruler, missing anomalous point but touching all other points (1)
not multiple lines [1]
- (c) any two sensible errors that could be from same category max 2
- qualified measurement error e.g. volume
 - qualified timing error
 - recording error
 - plotting error
 - temperature variation
 - contamination from previous experiment
- not** systematic error max [2]
- (d) 0.056–0.064 range (1) indication on graph (1) [2]
- (e) more particles/particles closer together (1) more collisions (1) [2]
- (f) sketch straight line to the LEFT of the original (1) [1]

- 3 (a) boxes completed correctly to show position of hydrochloric acid (1) and sodium sulphite (1) [2]
- (b) arrow underneath flask (1) [1]
- (c) mistakes passed through water (1) collected by upward delivery (1) [2]

[Total: 5]

4 (a)	Sodium hydroxide (1)	1
(b)	Ammonium sulphate (1)	1
(c)	Bunsen burner (1)	1
(d)	Reference to reaction (1)	1
(e)	Gas jar wrong way up (1) Gas is less dense than air (1)	2
	Tubes in flask should be evened (1) Liquid would be transferred to gas jar (1)	2
	Also credit in (c)	